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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,393	10/30/2001	Takeshi Sekiguchi	CU-2701 RJS	2550

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EXAMINER

KOCH, GEORGE R

ART UNIT PAPER NUMBER

1734

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/021,393	<b>Applicant(s)</b> SEKIGUCHI ET AL.	
	<b>Examiner</b> George R. Koch III	<b>Art Unit</b> 1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 and 8 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/27/2004 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang (US Patent 6,245,148 B1) in view of Raphael (US Patent 5,383,574) and Orlando (US Patent 5,502,685).

Liang discloses a device capable of providing a solution as claimed, and which is capable of leading a solution from any one source of supply to an applying device via a predetermined flow path.

Liang also discloses a middle tank (item 30) for each source of supply (item 11), the middle tank being provided on the way of the flow path connecteing each source of supply and the applying device (see Figure 1). Liang also discloses a sensor which detects whether an amount of a solution stored in each middle tank is not less than a predetermined lower limit value or not and outputs a signal in association with a detection result (items SB1, SB2, and SB3, see also column 3).

Liang is silent as to using more than one source of supply and middle tanks for each source of supply. Liang, also, is silent as to whether a controller is used or not. Liang merely suggests controlling.

Orlando discloses using more than one source of supply (item 10 and 24) and middle tanks (items 14 and 16) for each source of supply. Similar to Liang, Orlando discloses utilizing level control for each middle tank, via the use of sensors (items 38, 40, 42, and 44). Orlando discloses that the use of multiple middle tanks avoids the mixing of large batches of chemicals, which is useful since an incorrectly mixed batch might need to be disposed of in large quantities (abstract, column 1, lines 3-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized more than one source of supply and middle tanks for each source of supply in order to eliminate the need to mix large batches of chemicals.

Raphael discloses a similar device for providing a solution which leads a solution from any one of sources of supply (items 14 and 18) to an applying device via a predetermined flow path (see, for example, Figure 1), which includes a controlling device (item 120) which discriminates whether the amount of solution stored in each

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middle tank is not less than the lower limit value or not on the basis of the output signal from the sensor and performs the predetermined processing in association with switching of the sources of supply when it is decided that the amount of the solution stored in the middle tank is less than the lower limit value (see, for example, column 5, line 49 to column 6, line 27). Subelements of the Sensors (items 99 and 101) specifically set the lower limit value. Raphael discloses that the controlling device automates the apparatus and reduces waste of chemicals and solutions (see column 1, line 65 to 69). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a controlling device which automatically controls the operation in order to reduce waste of solutions.

As to claims 2, Liang discloses that 300 cc to 400 cc will cover approximately 150 wafers (see columns 1 and 2, especially column 1, lines 39-41 which disclose that the bottle has a volume of 500 cc, and lines 56-61, which discloses that after coating 150 wafers, the bottle has a volume of 100 to 200 cc), creating a range of 2 to 2.33 cc per wafer. Liang also discloses that it is known to use a lower limit of approximately 50 cc (50 mL). Therefore, Liang discloses that it is known to configure the applying device such that the lower limit value is not less than the predetermined discharge amount. The apparatus of Liang and Raphael is considered capable of dispensing the claimed ratios if necessary.

As to claim 3, the applying device is considered capable of dispensing a quantity of liquid such that the lower limit value is 100 to 150% of the quantity dispensed in one time.

As to claim 4, the maximum amount of solution which is stored in the middle tank is in both Liang and Raphael is higher than the lower limit value (see Liang, figure 1, and Raphael, sensors 99 and 101) by a predetermined degree of margin (see, for example, Raphael, column 4, lines 7-64).

As to claim 5, the sensor, defined by items SB1, SB2 and SB3, outputs different signals depending on whether a position of a liquid level of the solution which is stored in the middle tank is not less than a predetermined position or not. Furthermore, each sensor element SB1, SB2 and SB3 outputs a different signal depending on whether the liquid level is above or below the sensor.

As to claim 6, Liang discloses that the applying device is configure so as to discharge the solution by a predetermined amount (see especially column 3, lines 46-59), due to an open-close valve (item V1) which opens and closes in increments of a predetermined time due to a timing circuit. Such a structure would dispense solution as in claim 6, and ensures that the correct amount of solution is dispensed in each cycle.

***Allowable Subject Matter***

4. Claims 7 and 8 are allowed.
5. The following is an examiner's statement of reasons for allowance:

The prior art of record, for example, Raphael (US Patent 5,383,574), does disclose the limitations of claim 7 such as a device for providing a solution which leads a solution from any one of sources of supply (items 14 and 18) to an applying device via a predetermined flow path (see, for example, Figure 1), comprising a middle tank (item

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40) which is provided on the way of the flow path connecting each of the sources of supply and the applying device from each of the sources of supply, a sensor (items 98, 99, 100, and 101) which detects whether an amount of a solution stored in each middle tank is not less than a predetermined lower limit value or not and outputs a signal in association with detection result (see, for example, column 4, line 7 to column 8, line 10), and a controlling device (item 120) which discriminates whether the amount of solution stored in each middle tank is not less than the lower limit value or not on the basis of the output signal from the sensor and performs the predetermined processing in association with switching of the sources of supply when it is decided that the amount of the solution stored in the middle tank is less than the lower limit value (see, for example, column 5, line 49 to column 6, line 27). Subelements of the Sensors (items 99 and 101) specifically set the lower limit value. The prior art of record, for example, Liang, further discloses as in claim 7 (dependent on claim 1) using a pump as the applying device, and such a pump is capable of repeating a process to take in the solution by a predetermined amount and a process to discharge the solution which is taken in.

However, the prior art of record does not disclose that in addition to a pump as in claim 7, the further limitations of an ante-pump tank for storing the solution to be provided to the pump which is provided between the middle tank and the pump as well as downstream of a position where flow paths from each middle tank are converged, the ante-pump tank is provided with a sensor for a pump which detects whether the amount of the solution which is stored in the ante-pump tank is not less than a predetermined

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lower limit value or not and outputs a signal in association with detection result, and the controlling device discriminates whether the amount of the solution which is stored in the ante-pump tank is not less than the lower limit value or not and if the controlling device decides that the amount of the solution which is stored in the ante-pump tank is less than the lower limit value, predetermined processing in association with filling of the solution from the middle tank to the ante-pump tank is carried out.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GRK

July 8<sup>th</sup>, 2004

George R. Koch III  
Patent Examiner  
Art Unit 1734